# Notes 6.2

$|10|$ 10

$|-3|$ 3

$|x| = 6$ $x=6$, $x=-6$

$|x| = -5$ $\emptyset$

$|x| = 0$ $x=0$

Ex. 1

Solve for $x$: $|34 - 2x| = 12$

$34-2x=12$ $-34$ $-34$

$-2x=-22$

$\frac{-2x}{-2}=\frac{-22}{-2}$

$x=11$

$34-2x=-12$ $-34$ $-34$

$-2x=-46$

$\frac{-2x}{-2}=\frac{-46}{-2}$

$x=23$

Ex. 2

$|2x - 6| = 20$

$2x-6=20$ $+6$ $+6$

$\frac{2x}{2}=\frac{26}{2}$

$x=13$

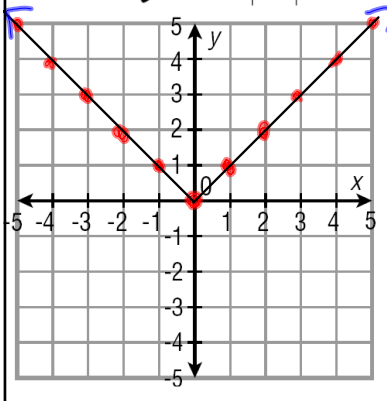
$2x-6=-20$ $+6$ $+6$

$\frac{2x}{2}=\frac{-14}{2}$

$x=-7$

## Absolute Value Function

$y = |x|$




Domain: $\mathbb{R}$

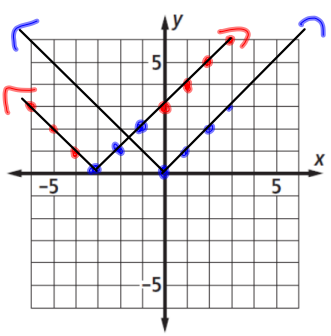
Range: $\mathbb{R} \geq 0$

a. Graph $y = |x|$ and $y = |x + 3|$ on the same axes below.

b. Use the graph to solve $|x| = |x + 3|$ for $x$.

$|-1-1|=1$

a.




$(-1.5, 1.5)$

# Vocabulary!

rational number: # that can be written as fraction

irrational number:

ex: $\pi$, $\sqrt{2}$, ...

Ex. 3

Solve $3x^2 = 18$

$\frac{3}{3}$ $\frac{3}{3}$

$\sqrt{x^2} = \sqrt{6}$

$x = \sqrt{6}$, $x = -\sqrt{6}$

$x = \pm\sqrt{6}$

Ex. 4

$2x^2 + 3 = 35$

$-3 \quad -3$

$\frac{2x^2}{2} = \frac{32}{2}$

$\sqrt{x^2} = \sqrt{16}$

$x = \pm 4$

Ex. 5

A square and a triangle have the same area. The triangle has base 7 cm and altitude 6 cm. What is the length of a side of the square?

$(2x - 8)^2 = 0$

$2x - 8 = 0$ $\quad$ $2x - 8 = 0$

$+8 \quad +8$

$2x = 8$

$x = 4$ , $x = 4$